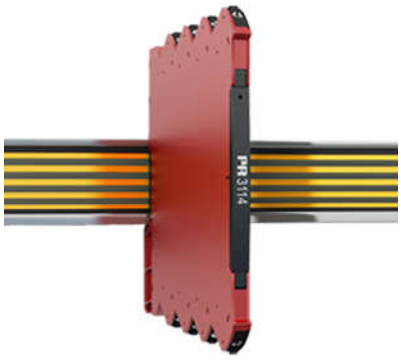
PERFORMANCE MADE SMARTER



Isolated universal converter

3114

- Input for RTD, TC, Ohm, potentiometer, mA and V
- 2-wire supply >15 V
- I.S. approvals: FM Div. 2, ATEX Zone 2, IECEx Zone 2, UKEX Zone 2
- Output for current and voltage
- Slimline housing of 6.1 mm

Applications

- Linearised, electronic temperature measurement with RTD or TC sensor.
- Conversion of linear resistance variation to a standard analog current / voltage signal, i.e. from solenoids and butterfly valves or linear movements with attached potentiometer.
- Power supply and signal isolator for 2-wire transmitters.
- Process control with standard analog output.
- Galvanic separation of analog signals and measurement of floating signals.

Technical characteristics

- A green front LED indicates normal operation and malfunction.
- Continuous check of vital stored data for safety reasons.
- 2.5 kVAC, 3-port galvanic isolation.

Programming

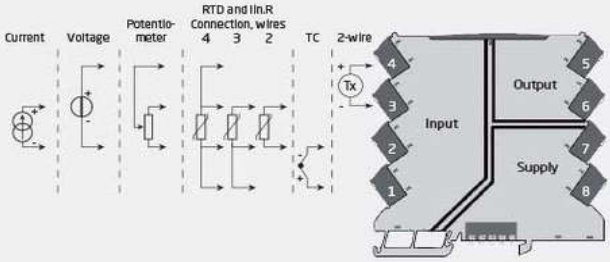
- Configuration, monitoring, and diagnostics using PR 4500 detachable communication interfaces via the PR 4590 ConfigMate. As the 3114 is designed with electronic hardware switches, it is not necessary to open the device for setting of DIP-switches.
- All programming can be password protected.
- Scrolling help text in 7 languages.

Mounting

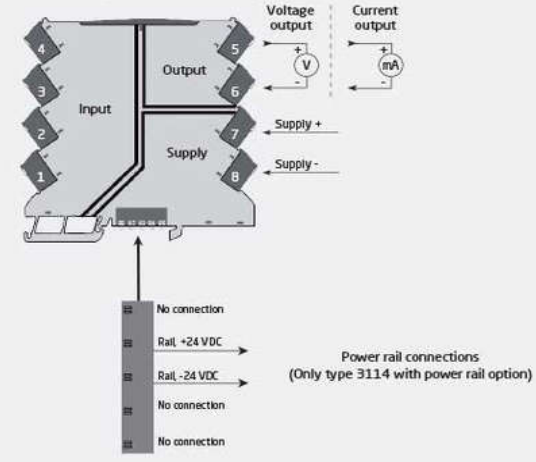
- Units can be mounted side by side, horizontally and vertically, without air gap on a standard DIN rail, even at 70°C ambient temperature.
- Units can be supplied separately or installed on PR 9400 power rail.
- The narrow 6.1 mm housing allows up to 163 units per meter.

Applications

Input signals:



Output signals and power supply:



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Order

Type	Version	
3114	With power rail connector / terminals	: -
	Supplied via terminals	: -N

Example: 3114

Environmental Conditions

Operating temperature..... -25°C to +70°C
Storage temperature..... -40°C to +85°C
Calibration temperature..... 20...28°C
Relative humidity..... < 95% RH (non-cond.)
Protection degree..... IP20
Installation in..... Pollution degree 2 & meas. / overvoltage cat. II

Mechanical specifications

Dimensions (HxWxD)..... 113 x 6.1 x 115 mm
Weight approx..... 70 g
DIN rail type..... DIN EN 60715/35 mm
Wire size..... 0.13...2.5 mm^2 / AWG 26...12 stranded wire
Screw terminal torque..... 0.5 Nm
Vibration..... IEC 60068-2-6
2...25 Hz..... ±1.6 mm
25...100 Hz..... ±4 g

Common specifications

Supply

Supply voltage..... 16.8...31.2 VDC
Fuse..... 400 mA SB / 250 VAC
Max. required power..... ≤ 1.2 W
Max. power dissipation..... 0.65 W

Isolation voltage

Isolation voltage, test / working..... 2.5 kVAC / 300 VAC (reinforced)
Zone 2 / Div. 2..... 250 VAC

Response time

Temperature input (0...90%, 100...10%)..... ≤ 1 s
mA / V input (0...90%, 100...10%)..... ≤ 400 ms

Signal / noise ratio..... Min. 60 dB (0...100 kHz)
Signal dynamics, input..... 24 bit
Signal dynamics, output..... 16 bit
Programming..... ConfigMate 4590
Accuracy..... Better than 0.1% of sel. range
EMC immunity influence..... < ±0.5% of span
Extended EMC immunity: NAMUR NE21, A criterion, burst..... < ±1% of span

Input specifications

RTD input

RTD type..... Pt10/20/50/100/200/250/300/Pt400/500/1000; Ni50/100/120/1000
Cable resistance per wire..... 50 Ω (max.)
Sensor current..... Nom. 0.2 mA
Effect of sensor cable resistance (3-/4-wire)..... < 0.002 Ω / Ω
Sensor error detection..... Yes
Short circuit detection..... < 15 Ω

Linear resistance input

Linear resistance min....max..... 0 Ω...10000 Ω

Potentiometer input

Potentiometer min....max..... 10 Ω...100 kΩ

TC input

Thermocouple type..... B, E, J, K, L, N, R, S, T, U, W3, W5, LR
CJC via int. mounted sensor..... ±(2.0°C + 0.4°C * Δt)
Sensor error detection..... Yes
Sensor error current: When detecting / else..... Nom. 2 µA / 0 µA

Current input

Measurement range..... 0...23 mA
Programmable measurement ranges..... 0...20 and 4...20 mA
Input resistance..... Nom. 20 Ω + PTC 50 Ω

Voltage input

Measurement range..... 0...12 VDC
Programmable measurement ranges..... 0/0.2...1, 0/1...5, 0/2...10 VDC
Input resistance..... Nom. 10 MΩ

2-wire transmitter supply..... > 15 V / 20 mA

Output specifications

Current output

Signal range..... 0...23 mA
Programmable signal ranges..... 0...20/4...20/20...0/20...4 mA
Load (@ current output)..... ≤ 600 Ω
Load stability..... ≤ 0.01% of span / 100 Ω
Sensor error indication..... 0 / 3.5 / 23 mA / none
NAMUR NE43 Upscale/Downscale..... 23 mA / 3.5 mA
Current limit..... ≤ 28 mA

Voltage output

Signal range..... 0...10 VDC
Programmable signal ranges..... 0/0.2...1; 0/1...5 ; 0/2...10; 1...0.2/0; 5...1/0; 10...2/0 V
Load (@ voltage output)..... ≥ 10 kΩ

of span..... = of the presently selected range

I.S. / Ex marking

ATEX..... II 3 G Ex ec IIC T4 Gc
IECEx..... Ex ec IIC T4 Gc
FM, US..... Cl. I, Div. 2, Gp. A, B, C, D T4 or Cl. I, Zone 2, AEx nA IIC T4
FM, CA..... Cl. I, Div. 2, Gp. A, B, C, D T4 or Cl. I, Zone 2, Ex nA IIC T4

Observed authority requirements

EMC..... 2014/30/EU & UK SI 2016/1091
LVD..... 2014/35/EU & UK SI 2016/1101
ATEX..... 2014/34/EU & UK SI 2016/1107
RoHS..... 2011/65/EU & UK SI 2012/3032
EAC..... TR-CU 020/2011
EAC Ex..... TR-CU 012/2011

Approvals

ATEX..... KEMA 10ATEX0147 X
IECEx..... KEM 10.0068X
UKEX..... DEKRA 21UKEX0055X
c FM us..... FM17US0004X / FM17CA0003X
c UL us, UL 61010-1..... E314307
CCC..... 2020322310003554
EAC Ex..... RU C-DK.HA65.B.00355/19
DNV Marine..... TAA00001RW